45. (Added) The method of claim 44, wherein the polymeric strand comprises a poly(arylene).

46. (Added) The method of claim 45, wherein the poly(arylene) is selected from the group consisting of a poly(arylene ether), a poly(arylene ether-ether-ketone), a poly(arylene ether-quinoxaline), a poly(arylene ether-benzil), and a poly(arylene ether-quinoline).

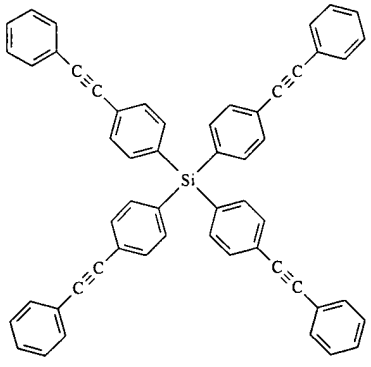
47. (Added) The method of claim 44, wherein the polymeric strand comprises a polymer selected from the group consisting of a polyimide, a polyamide, a polyimide-amide.

48. (Added) The method of claim 44, wherein at least one of the three arms of the molecule comprises an aromatic ring.

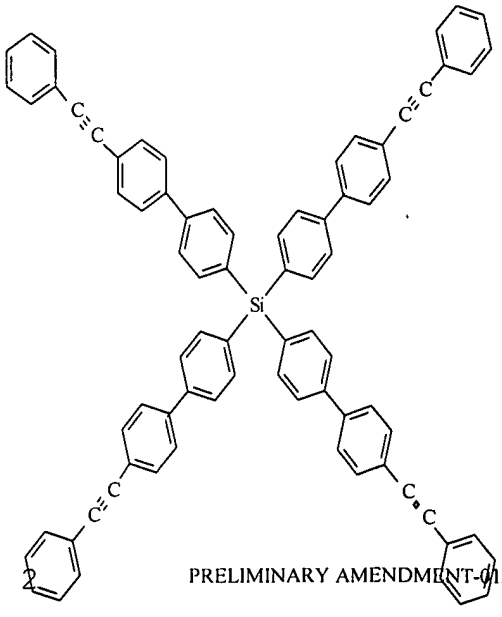
49. (Added) The method of claim 48, wherein the at least one of the three arms further comprises an ethynyl group.

50. (Added) The method of claim 49, wherein the at least one of the three arms comprises a chemical group selected from the group consisting of a 4-ethynylphenyl, a tolanyl, a 4-phenylethynylbiphenyl, and a bistolanyl.

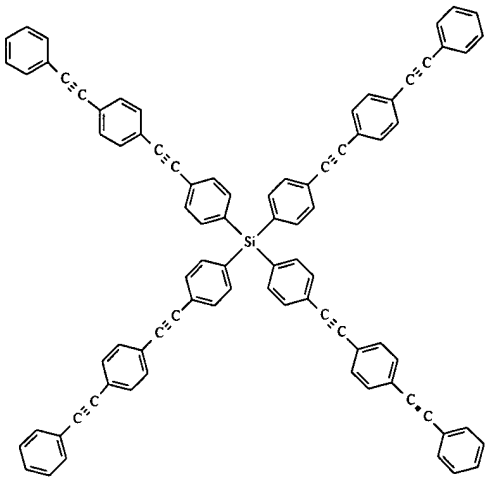
51. (Added) The method of claim 44, wherein the molecule has a structure selected from the group consisting of:



,



, and



52. (Added) The method of claim 44, wherein the reactive group is a triple bond.

53. (Added) The method of claim 44, wherein the polymeric network is a semi-interpenetrating network.

54. (Added) The method of claim 44, wherein the reaction comprises a cyclo-addition reaction.

55. (Added) The method of claim 44, wherein the reaction takes place without an additional crosslinking molecule.

56. (Added) The method of claim 44, wherein the thermal activation comprises heating the first and second components to a temperature of at least 200°C.

57. (Added) The method of claim 44, wherein the low dielectric constant material has a dielectric constant of less than 2.4.

58. (Added) The method of claim 44, wherein the low dielectric constant material has a dielectric constant of less than 2.7.

59. (Added) The method of claim 44, wherein the material has a glass transition temperature higher than 400°C.